

CONTRACT PLANS

STANDARD RETAINING WALL

DRAWINGS (WD-01 TO WD-09)

I-405 MP 0.00 TO MP 14.60

I-405; RENTON TO BELLEVUE WIDENING
AND EXPRESS TOLL LANES PROJECT

VOLUME 8
WSDOT FINAL DESIGN SUBMITTAL

KING COUNTY

		Date
Originated By:	MJF	12/23/21
Checked By:	JMG	12/23/21
Backchecked By:		
Corrected By:		
Verified By:		



Washington State
Department of Transportation




12/17/2021

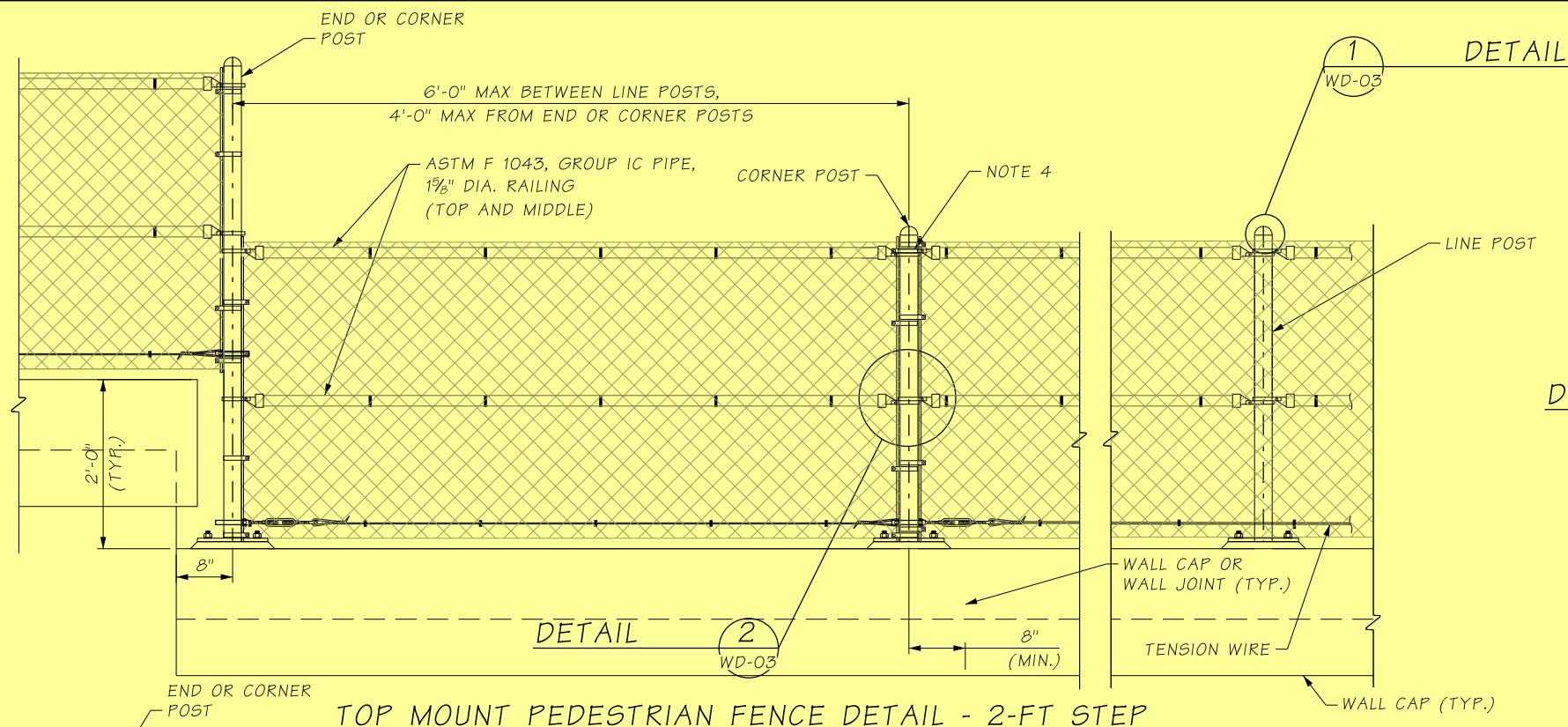
VOLUME 8

		Date
Originated By:	<u>MJF</u>	<u>12/23/21</u>
Checked By:	<u>JMG</u>	<u>12/23/21</u>
Backchecked By:	<u> </u>	<u> </u>
Corrected By:	<u> </u>	<u> </u>
Verified By:	<u> </u>	<u> </u>

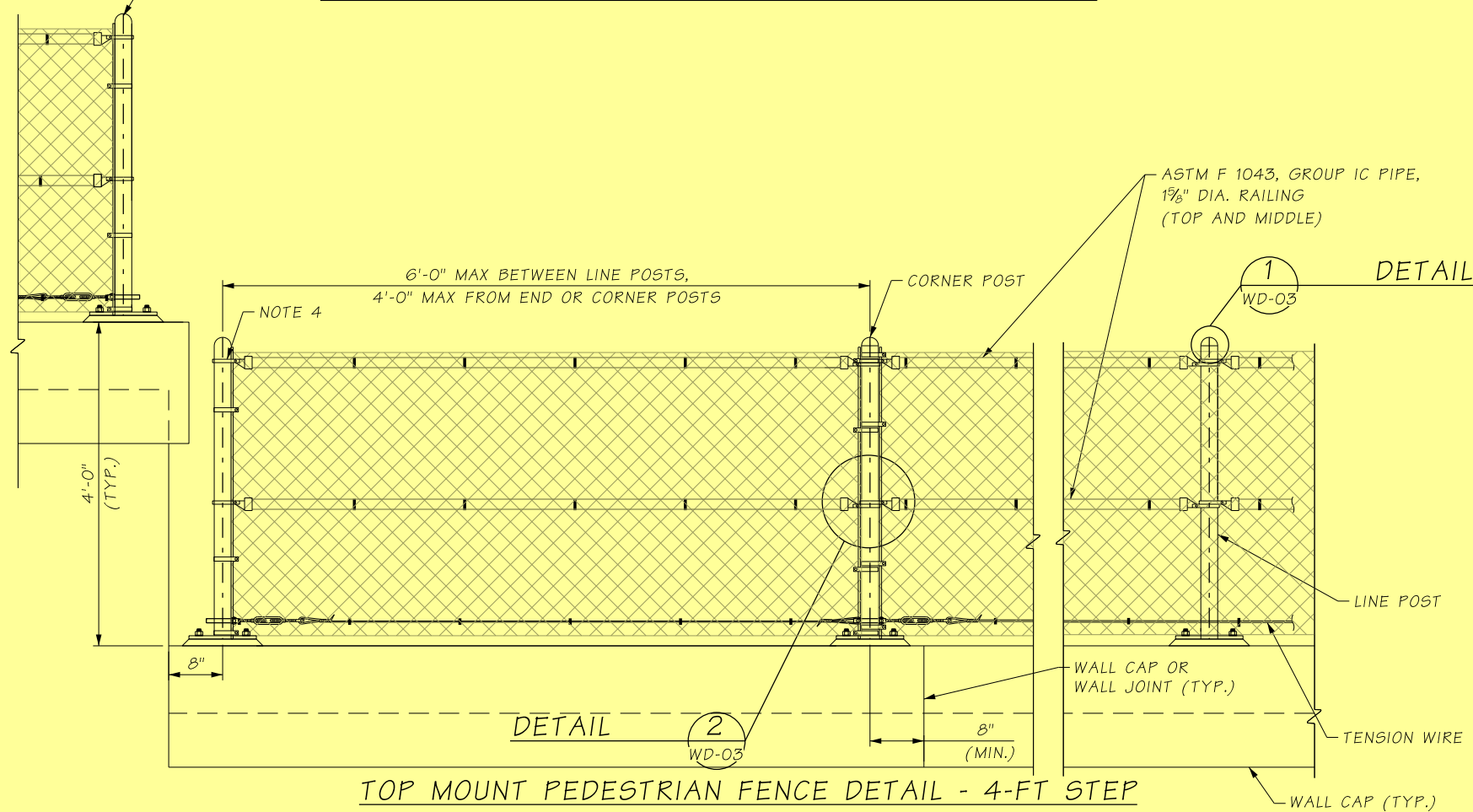
Date				PLAN REF NO.	SHEET TITLE	SHEET DESCRIPTION	
MJF	12/23/21						
JMG	12/23/21						
				W109	2	RETIANING WALL DETAIL	WALL 13.25L (2 OF 2)
				W110	1	RETAINING WALL PLAN AND PROFILE	WALL 13.26L (1 OF 2)
				W110	2	RETIANING WALL DETAIL	WALL 13.26L (2 OF 2)
				W111	1	RETAINING WALL PLAN AND PROFILE	12.35L (1 OF 3)
B				W111	2	RETAINING WALL PLAN AND PROFILE	12.35L (2 OF 3)
B				W111	3	RETIANING WALL DETAIL	12.35L (3 OF 3)
B				W112	1	RETAINING WALL PLAN AND PROFILE	12.35R (1 OF 3)
B				W112	2	RETAINING WALL PLAN AND PROFILE	12.35R (2 OF 3)
B				W112	3	RETIANING WALL DETAIL	12.35R (3 OF 3)
B				W113	1	RETAINING WALL PLAN AND PROFILE	13.00R (1 OF 2)
B				W113	2	RETIANING WALL DETAIL	13.00R (1 OF 2)
B				W114	1	RETAINING WALL PLAN AND PROFILE	12.40ABUT (1 OF 2)
B				W114	2	RETIANING WALL DETAIL	12.40ABUT (2 OF 2)
B	X			WD	1	RETAINING WALL TYPICAL DETAILS	PEDESTRIAN FENCE DETAILS
B	X			WD	2	RETAINING WALL TYPICAL DETAILS	FALL PROTECTION FENCE DETAILS
B	X			WD	3	RETAINING WALL TYPICAL DETAILS	FENCE BASE AND CONNECTIONS
B	X			WD	4	RETAINING WALL TYPICAL DETAILS	PRECAST/CIP CONCRETE
B	X			WD	5	RETAINING WALL TYPICAL DETAILS	WALL FOOTING AND JOINT DETAILS
B	X			WD	6	RETAINING WALL TYPICAL DETAILS	WALL DRAINS
B	X			WD	7	RETAINING WALL TYPICAL DETAILS	WALL DRAIN AND WEEP HOLE DETAILS
B	X			WD	8	RETAINING WALL TYPICAL DETAILS	FALL PROTECTION CABLE FENCE ALT.
B	X			WD	9	RETAINING WALL TYPICAL DETAILS	WALL CAP CONNECTION DETAILS
B				WD		RETAINING WALL TYPICAL DETAILS	
B				NWD	1	NOISE WALL	SECTIONS AND DETAILS
B				NWD	2	NOISE WALL	SECTIONS AND DETAILS
A				NWD	3		
A				NWD	1-1	NOISE WALL EAST 10(1) AND 10(2)	PRECAST SECTIONS AND DETAILS
A				NWD	1-2	NOISE WALL EAST 10(1) AND 10(2)	PRECAST CAP DETAILS
A				NWD	1-3	NOISE WALL EAST 10(1) AND 10(2)	PRECAST SECTIONS AND DETAILS
A				NWD	1-4	NOISE WALL EAST 10(1) AND 10(2)	PRECAST SECTIONS AND DETAILS
A				NWD	1-5	NOISE WALL EAST 10(1) AND 10(2)	PRECAST SECTIONS AND DETAILS
A				NWD	1-6	NOISE WALL EAST 10(1) AND 10(2)	DRILLED SHAFT SCHEDULE
A				NWD	1-7	NOISE WALL EAST 10 - CPF	NOISE WALL DETAILS
A				NWD	4-1	NOISE WALL DETAILS-23'-0" MAX. EXP. WALL	NOISE WALL EAST 11
A				NWD	4-2	NOISE WALL DETAILS-19'-6" MAX. EXP. WALL	NOISE WALL EAST 11
A				NWD	4-3	NOISE WALL DETAILS-12'-0" MAX. EXP. WALL	NOISE WALL EAST 11
A				NWD	4-4	NOISE WALL DETAILS MAX HEIGHT 22'-0"	NOISE WALL EAST 11
A				NWD	4-5	NOISE WALL DETAILS MAX HEIGHT 22'-0"	NOISE WALL EAST 11
A				NWD	4-6	NOISE WALL DETAILS MAX HEIGHT 32'-4"	NOISE WALL EAST 11
A				NWD	4-7	NOISE WALL DETAILS MAX HEIGHT 32'-4"	NOISE WALL EAST 11
A				NWD	4-8	NOISE WALL DETAILS	NOISE WALL EAST 11
A				NWD	4-9	NOISE WALL DETAILS	NOISE WALL EAST 11
A				NWD	4-10	NOISE WALL DETAILS	NOISE WALL EAST 11
A				NWD	4-11	NOISE WALL SHAFT SCHEDULE	NOISE WALL EAST 11
A				NWD	5		
A				NWD	6		
B				NWD	7-1	NOISE WALL DETAILS	NOISE WALL WEST 5(1)
B				NWD	7-2	NOISE WALL DETAILS	NOISE WALL WEST 5(1)
B				NWD	7-3	NOISE WALL DETAILS	NOISE WALL WEST 5(1)
B				NW1	1	NOISE WALL PLAN AND PROFILE	NOISEWALL EAST 10 (1) (1 OF 2)
B				NW1	2	NOISE WALL PLAN AND PROFILE	NOISEWALL EAST 10 (1) (2 OF 2)
B				NW2	1	NOISE WALL PLAN AND PROFILE	NOISEWALL EAST 10 (2) (1 OF 2)
B				NW2	2	NOISE WALL PLAN AND PROFILE	NOISEWALL EAST 10 (2) (1 OF 2)
B				NW3	1	NOISE WALL PLAN AND PROFILE	CONCRETE PROTECTIVE FENCE (1 OF 2)
B				NW3	2	NOISE WALL PLAN AND PROFILE	CONCRETE PROTECTIVE FENCE (2 OF 2)
B				NW4	1	NOISE WALL PLAN AND PROFILE	NOISE WALL EAST 11 (1 OF 7)
B				NW4	2	NOISE WALL PLAN AND PROFILE	NOISE WALL EAST 11 (2OF 7)

[illegible]

NO.	ISSUE DATE	ISSUE RECORD - DESCRIPTION	DESIGNED BY	ENTERED BY	CHECKED BY	DESIGN MANAGER:	REGION NO. NO.	STATE					 Washington State Department of Transportation		I-405 RENTON TO BELLEVUE EXPRESS TOLL LANES		PLAN REF NO.
							10	WASH							IN08-2		
															INDEX OF SHEETS - VOL 8		
									<div>DATE</div> <div>P.E. STAMP BOX</div>		<div>DATE</div> <div>P.E. STAMP BOX</div>						

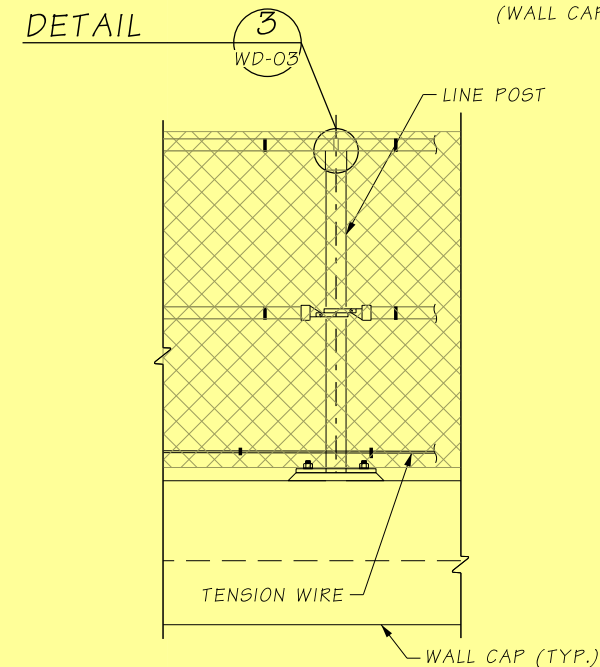


TOP MOUNT PEDESTRIAN FENCE DETAIL - 2-FT STEP



TOP MOUNT PEDESTRIAN FENCE DETAIL - 4-FT STEP

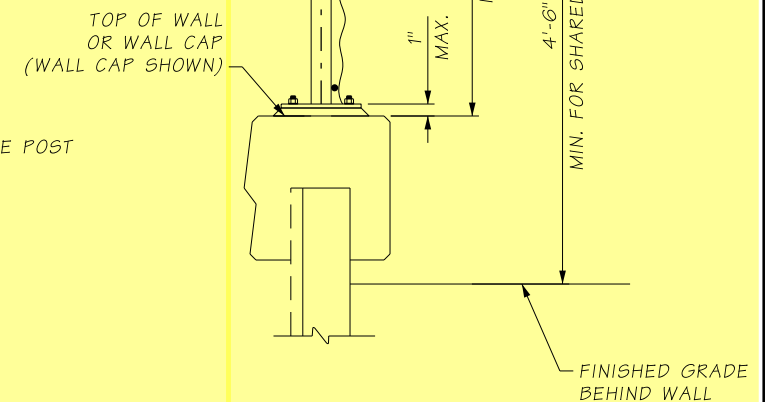
Date	
Originated By:	MJF
Checked By:	JMG
Backchecked By:	
Corrected By:	
Verified By:	



OPTIONAL LINE POST WITH
CONTINUOUS TOP RAIL

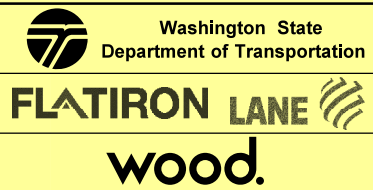
NOTES:

- CHAIN LINK FABRIC SHALL BE 11 GAUGE, BLACK VINYL COATED, MAX OPENING = 2 INCHES. ALL POSTS, RAILS AND OTHER HARDWARE SHALL BE POWDER COATED BLACK.
- UNLESS OTHERWISE NOTED, GENERAL CONNECTION HARDWARE FOR CHAIN LINK FENCE SHALL CONFORM TO WSDOT STANDARD PLAN L-20.10-03, TYPE 4.
- POSTS SHALL BE SPACED AT NO MORE THAN 6' ON CENTER BETWEEN LINE POSTS AND 4' MAX FROM END OR CORNER POSTS.
- STEEL BRACE BAND CONNECTIONS ARE SHOWN. ALTERNATE CONNECTIONS DESIGNED TO RESIST THE REQUIRED LOADS MAY BE SUBMITTED FOR REVIEW DURING CONSTRUCTION. SEE SHEET WD-03.
- SEE SHEET WD-03 FOR VERTICAL POST BASE CONNECTION DETAILS.
- SEE GSP 8-12 CHAIN LINK FENCE AND WIRE FENCE FOR ADDITIONAL FENCE REQUIREMENTS.



TYP SECTION

\\AMECPW03\ICS01\ICS_pdf_work_dir\7393\22040_55\XL5467_DE_WD-01.dgn				REGION NO.	STATE	FED. AID. PROJ. NO.	SHEET NO.	TOTAL SHEETS
Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD			10	WASH.		
Designed By:	M. FRAKER				JOB NUMBER			
Checked By:	M. GARVER				XL5467			
Detailed By:	R. ABANO				CONTRACT NO.			
Current Revision By:					C9242			
Date:	11/29/2021							
Time:	3:41:31 PM	DESCRIPTION	DATE	NO				

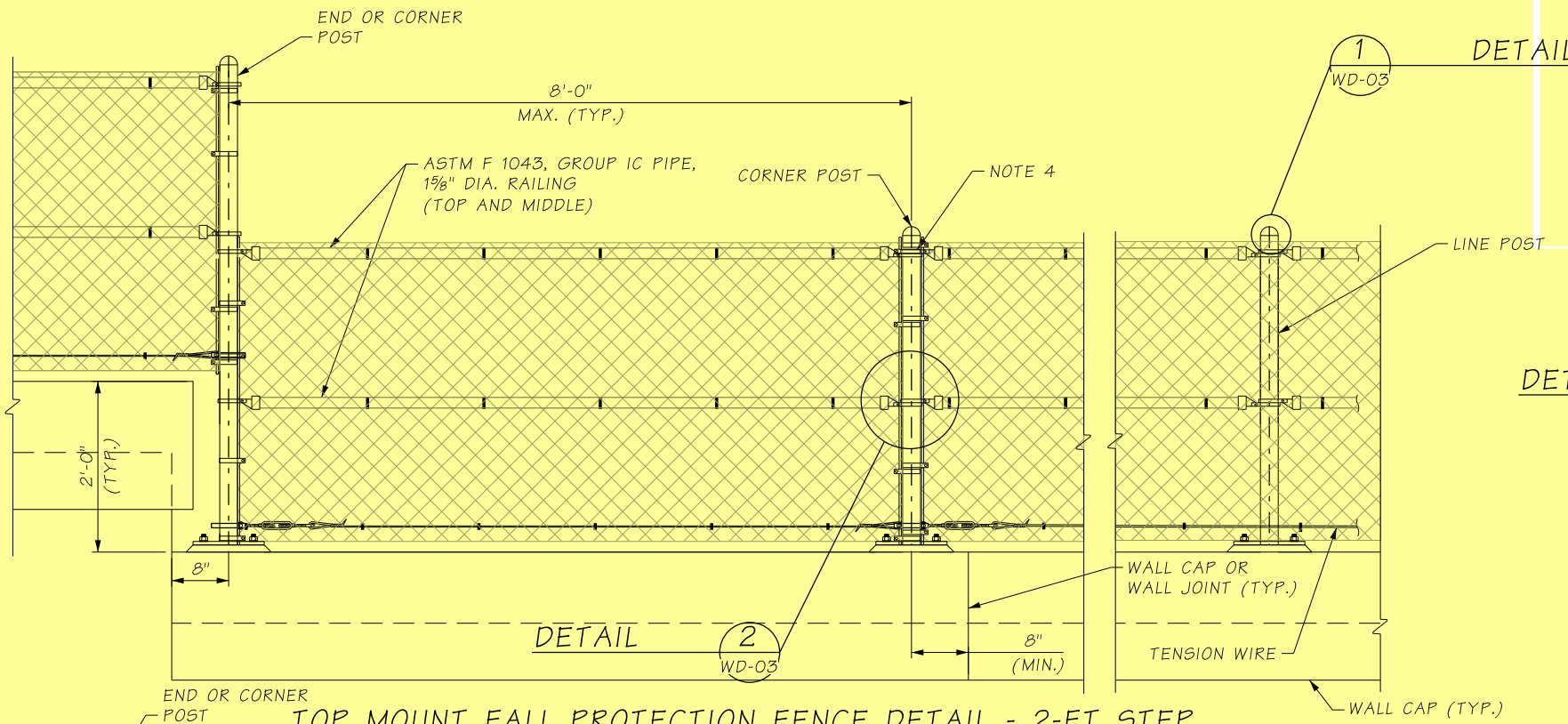


I-405; RENTON TO BELLEVUE WIDENING
AND EXPRESS TOLL LANES PROJECT

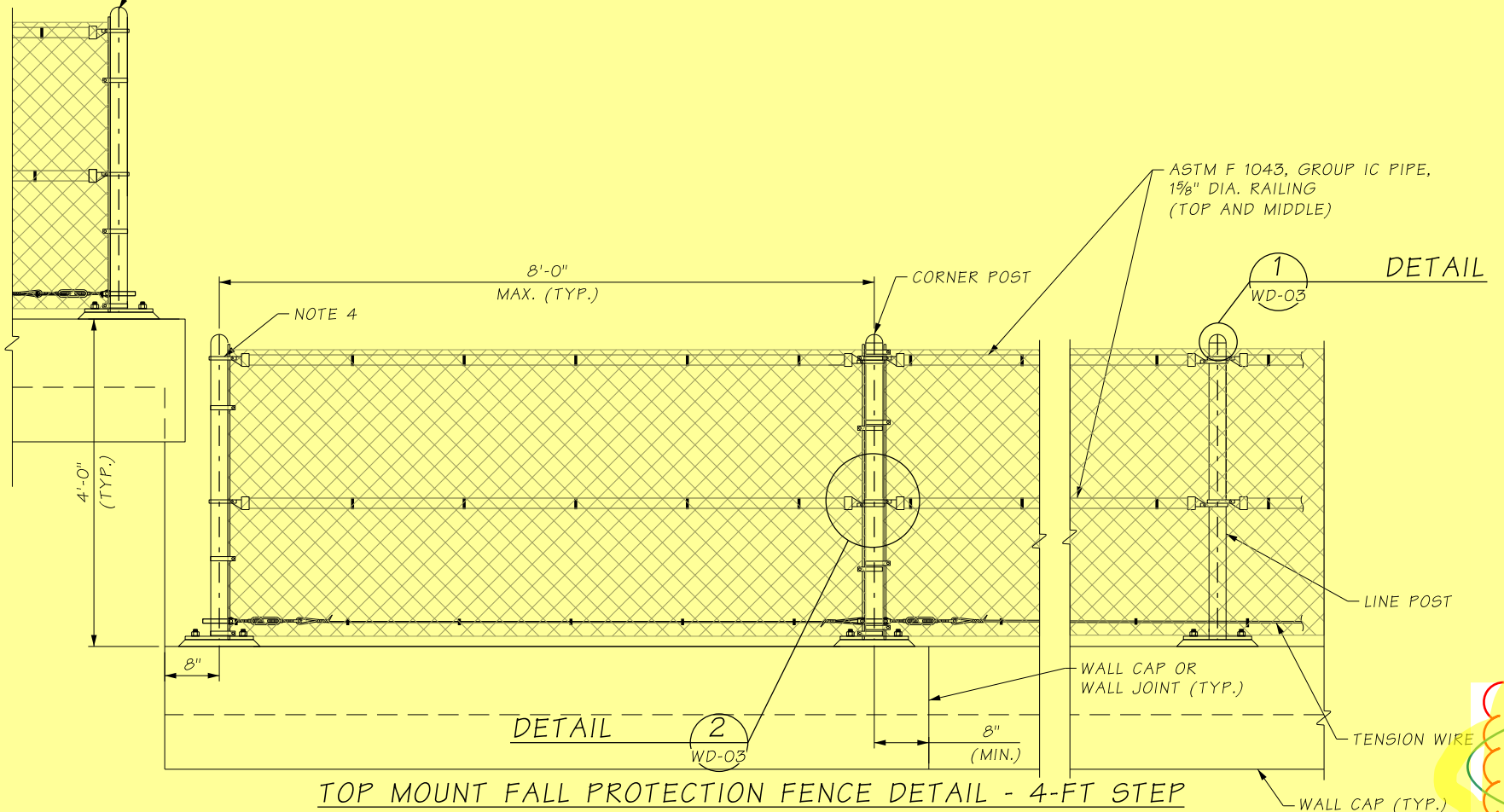
RETAINING WALL TYPICAL DETAILS
PEDESTRIAN FENCE DETAILS

PLAN REF. NO.
WD-01
SHEET
OF
SHEETS

I-405
FILE NO. 9242
SHEET

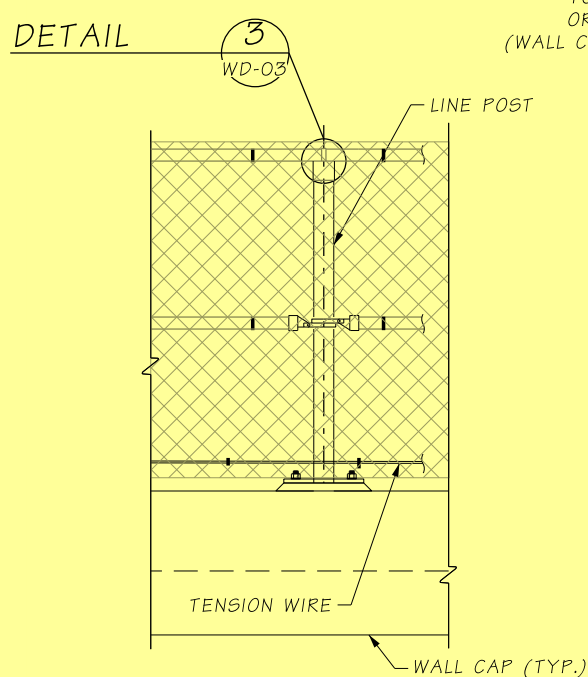


TOP MOUNT FALL PROTECTION FENCE DETAIL - 2-FT STEP

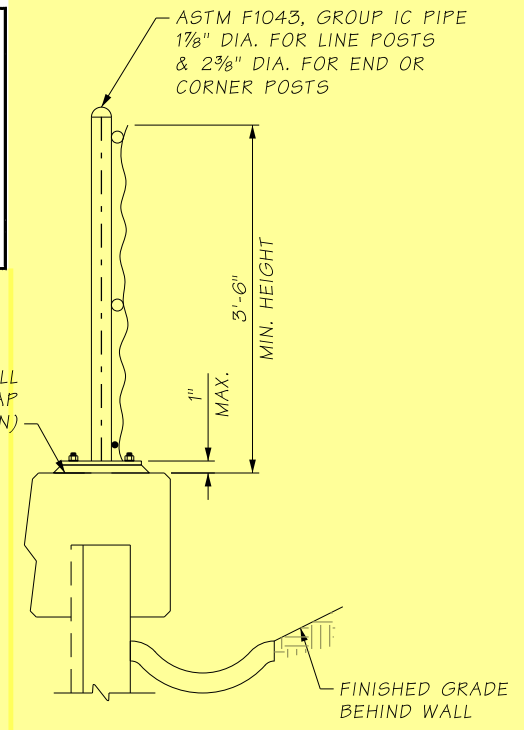


TOP MOUNT FALL PROTECTION FENCE DETAIL - 4-FT STEP

Date		
Originated By:	MJF	12/01/21
Checked By:	JMG	12/01/21
Backchecked By:	MJF	12/01/21
Corrected By:	MJF	12/01/21
Verified By:	JMG	12/01/21



OPTIONAL LINE POST WITH CONTINUOUS TOP RAIL

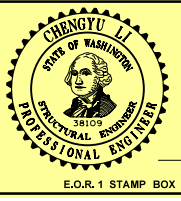


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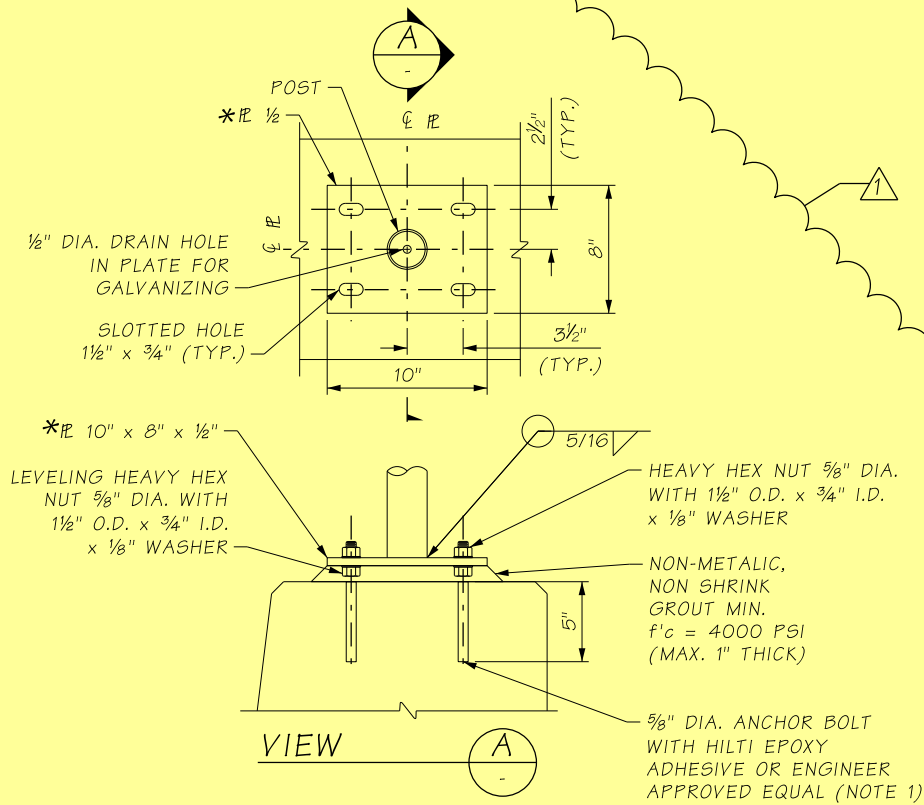
NOTES:

- CHAIN LINK FABRIC SHALL BE 11 GAUGE, BLACK VINYL COATED, MAX OPENING = 2 INCHES. ALL POSTS, RAILS AND OTHER HARDWARE SHALL BE POWDER COATED BLACK.
- UNLESS OTHERWISE NOTED, GENERAL CONNECTION HARDWARE FOR CHAIN LINK FENCE SHALL CONFORM TO WSDOT STANDARD PLAN L-20.10-03, TYPE 4.
- POSTS SHALL BE SPACED AT NO MORE THAN 8 FEET ON CENTERS.
- STEEL BRACE BAND CONNECTIONS ARE SHOWN. ALTERNATE CONNECTIONS DESIGNED TO RESIST THE REQUIRED LOADS MAY BE SUBMITTED FOR REVIEW DURING CONSTRUCTION. SEE SHEET WD-03.
- SEE SHEET WD-03 FOR VERTICAL POST-BASE CONNECTION DETAILS.
- SEE GSP 8-12 CHAIN LINK FENCE AND WIRE FENCE FOR ADDITIONAL FENCE REQUIREMENTS.
- FOR ALTERNATE FALL PROTECTION CABLE FENCE DETAILS, SEE SHEET WD-08.

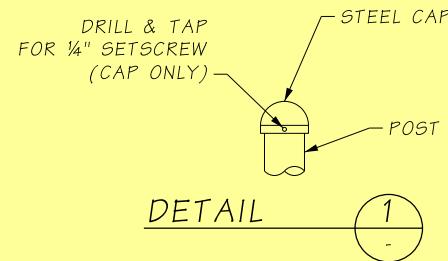
\\AMECPW03\ICS01\ICS_pdf_work_dir\7393\22040_2\XL5467_DE_WD-02.dgn				REGION NO.	STATE	FED. AID. PROJ. NO.	SHEET NO.	TOTAL SHEETS
Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD		10	WASH.			
Designed By:	M. FRAKER							
Checked By:	M. GARVER							
Detailed By:	R. ABANO							
Current Revision By:								
Date:	11/29/2021							
Time:	3:40:31 PM	DESCRIPTION	DATE	NO	CONTRACT NO.			
					C9242			



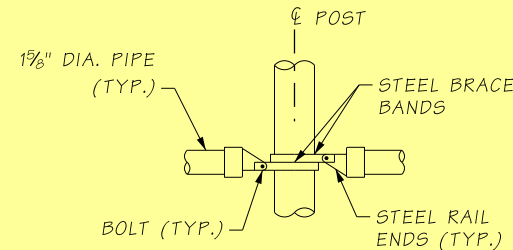
Washington State Department of Transportation	I-405; RENTON TO BELLEVUE WIDENING AND EXPRESS TOLL LANES PROJECT	PLAN REF. NO. WD-02
FLATIRON LANE wood.	RETAINING WALL TYPICAL DETAILS FALL PROTECTION FENCE DETAILS	SHEET OF SHEETS



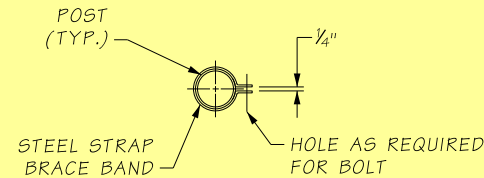
FENCING BASE DETAILS



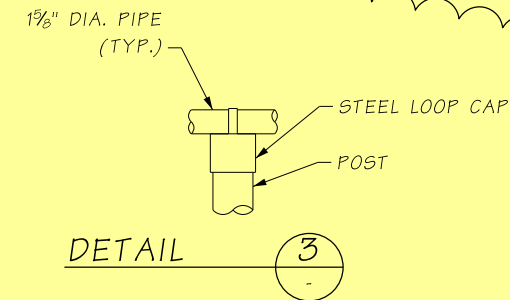
DETAIL 1



DETAIL 2



BRACE BAND



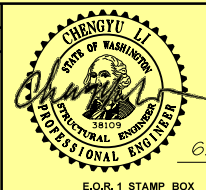
DETAIL 3

Date		
Originated By:	MJF	12/01/21
Checked By:	JMG	12/22/21
Backchecked By:		
Corrected By:		
Verified By:		

NOTES:

- PER STANDARD SPECIFICATIONS SECTION 9-06.5(4), ANCHOR BOLTS SHALL MEET CRITERIA OF ASTM F1554. ANCHOR GRADE 55 OR 105 SHALL BE USED WITH HILTI HIT HY 200 EPOXY, AND GRADE 36, 55 OR 105 SHALL BE USED FOR HILTI HIT RE 500 EPOXY. NUTS SHALL MEET ASTM A563, GRADE D OR DH. STEEL PLATE SHALL MEET REQUIREMENTS OF ASTM A36 AND SHALL BE GALVANIZED. CORING FOR ANCHOR BOLT SHALL BE MADE BY HAMMER DRILL WITH CARBIDE BIT OR DIAMOND BIT AND ROUGHENED.
- STEEL BRACE BAND CONNECTIONS OF TOP AND MID RAILING SHALL BE MIN. 12 GAGE x 3/4" PER ASTM F626. MIN. STEEL GRADE FOR BRACE BAND SHALL BE AASHTO M270, GRADE 36 OR ASTM A36. BOLTS SHALL BE MIN. ASTM A307 GRADE A PER STANDARD SPECIFICATIONS SECTION 9-06.22. ALTERNATE CONNECTIONS TO WHAT IS SHOWN IN THESE DRAWINGS DESIGNED TO RESIST THE REQUIRED LOADS MAY BE SUBMITTED FOR REVIEW DURING CONSTRUCTION. IF SO, TYPE 3E WORKING DRAWINGS SHALL BE SUBMITTED PER CONFORMED RFP, I-405, RENTON TO BELLEVUE WIDENING AND ETL PROJECT, SECTION 2.13.7.2.
- FILLET WELD BETWEEN POST AND BASE PLATE SHALL BE MADE WITH WELD FILLER METAL WITH MINIMUM TENSILE STRENGTH OF 70 KSI.

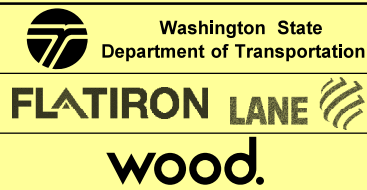
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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD			10	WASH.							
Designed By:	J. FORBES	RELEASED FOR CONSTRUCTION	06/24/21	0									
Checked By:	G. BAJORIA	REVISION	12/22/21	1									
Detailed By:	J. FORBES												
Current Revision By:	M. FRAKER												
Date:	12/22/2021												
Time:	10:55:10 PM	DESCRIPTION	DATE	NO									



6/24/21
DATE

E.O.R. 1 STAMP BOX

DATE
E.O.R. 2 STAMP BOX

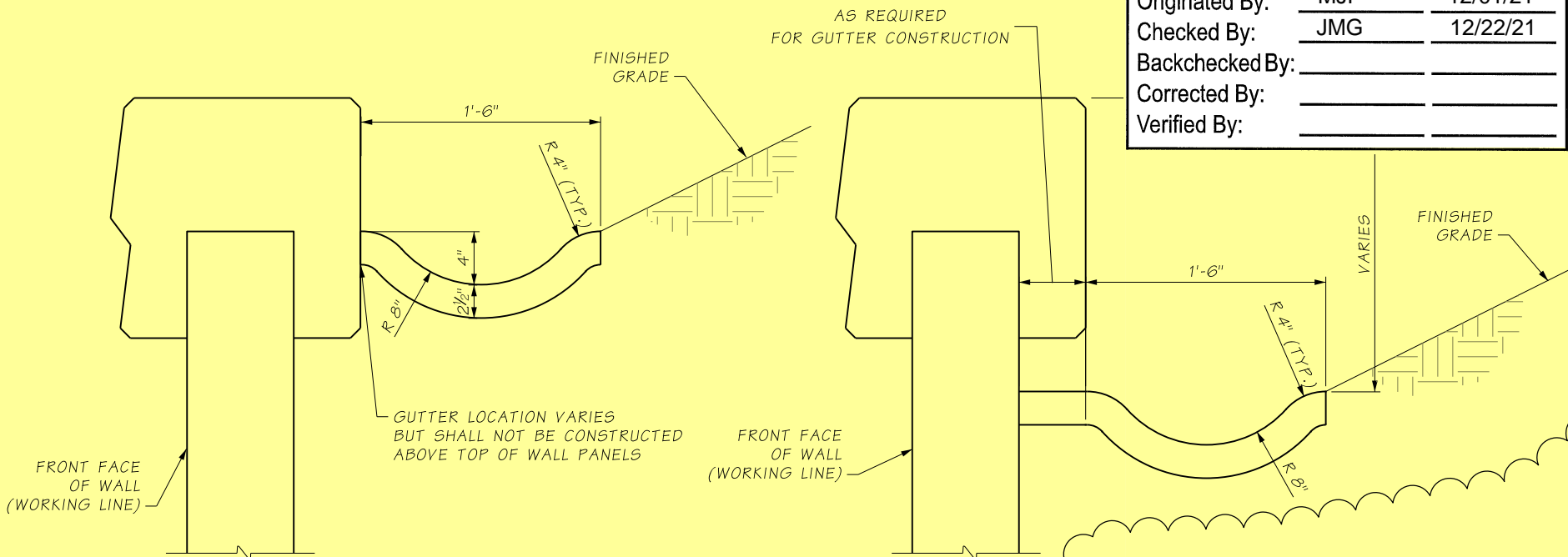


I-405; RENTON TO BELLEVUE WIDENING
AND EXPRESS TOLL LANES PROJECT

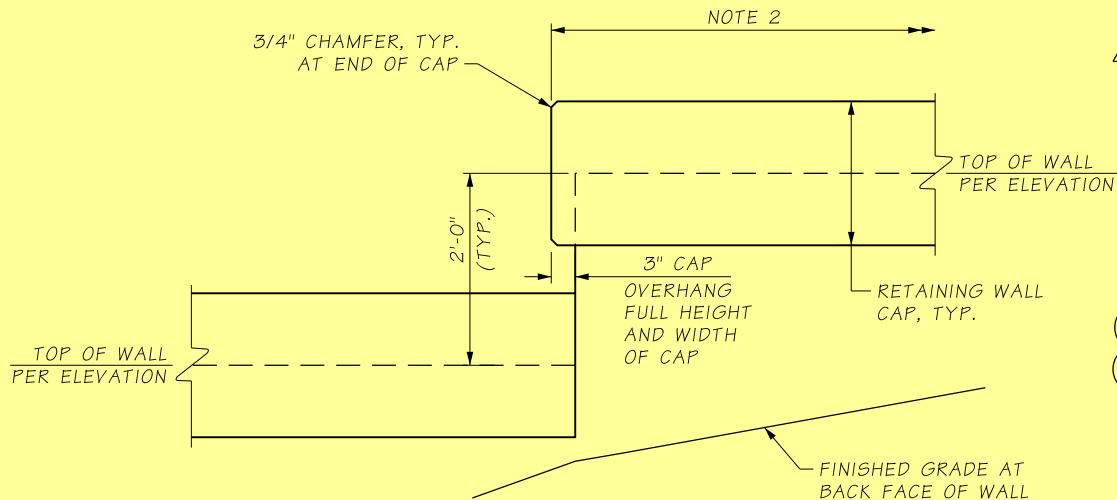
RETAINING WALL TYPICAL DETAILS
FENCE BASE AND CONNECTIONS

PLAN REF. NO.
WD-03
SHEET
OF
SHEETS

Originated By:	MJF	Date	12/01/21
Checked By:	JMG		12/22/21
Backchecked By:			
Corrected By:			
Verified By:			

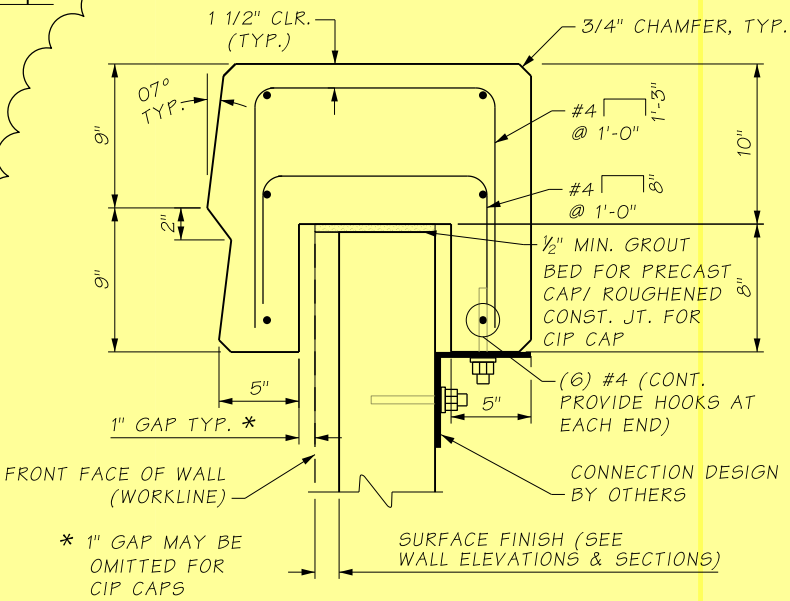


TYPICAL GUTTER DETAIL

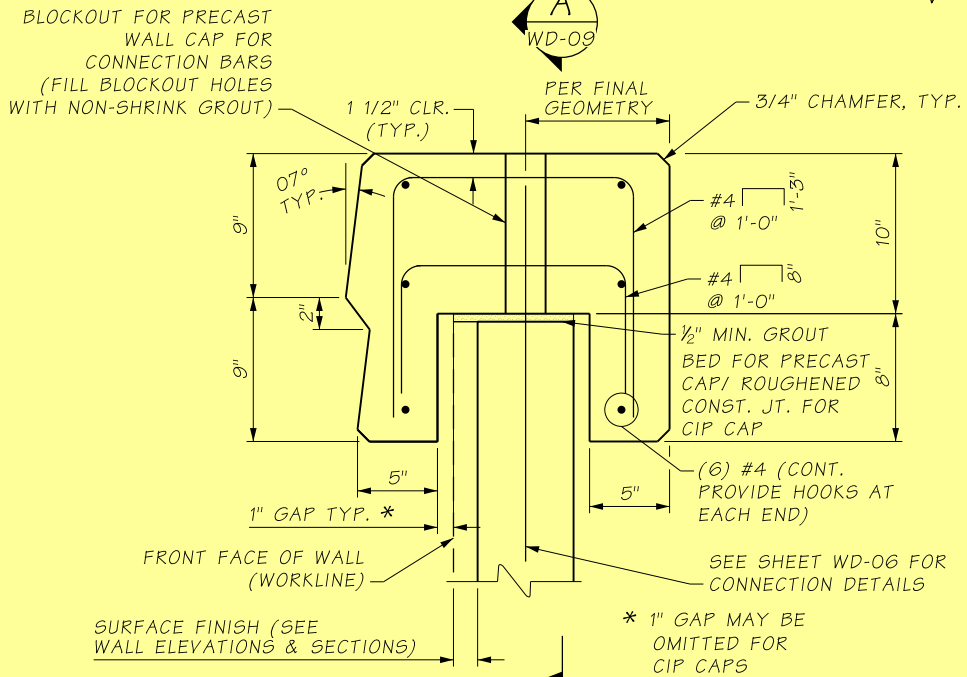


NOTES: WALL CAP STEP TYPICAL DETAIL

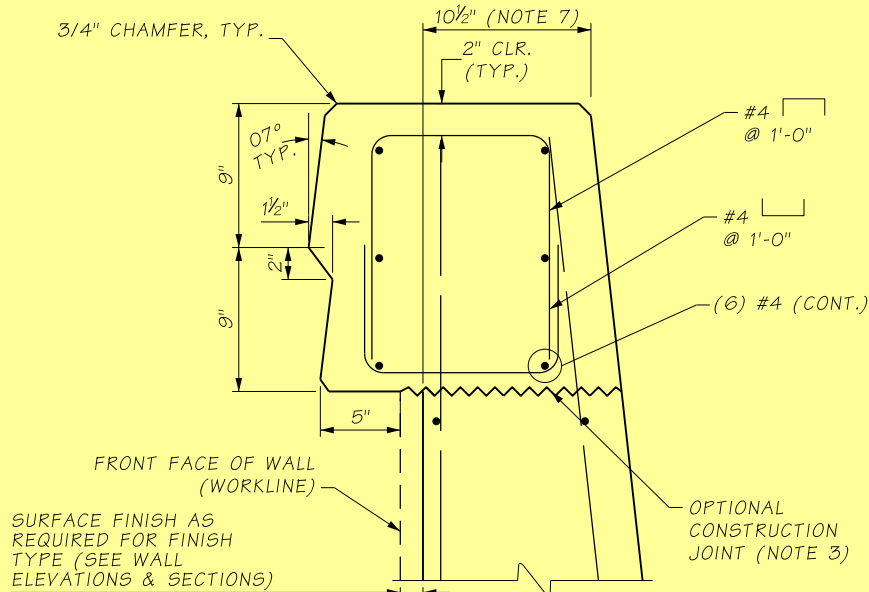
- DRAINAGE GUTTERS SHALL BE CONSTRUCTED WITH 3000 PSI CONCRETE PER WSDOT STANDARD SPECIFICATIONS SECTION 08-04.3(1). ALL OTHER CONCRETE SHALL BE 4000 PSI UNLESS OTHERWISE SHOWN.
- WALL CAP STEPS SHALL BE SPACED AT 24'-0" MIN, UNLESS OTHERWISE SHOWN.
- PROVIDE ROUGHENED SURFACE AT CONSTRUCTION JOINTS.
- WALL CAPS MAY BE PRECAST OR CAST IN PLACE (C-I-P).
- WALL CAPS SHALL HAVE MIN. 1/2" EXPANSION JOINTS WITH CAULKING. WALL CAP JOINTS SHALL NOT BE PLACED OVER WALL EXPANSION JOINT LOCATIONS. PLACE WALL CAP JOINTS AT WALL EXPANSION JOINTS TO ALLOW FOR MOVEMENT OF THE WALL FACING.
- MIN. TOP WIDTH OF WALL STEM SHOWN FOR VERTICAL FACE WALL DESIGN WITH 250 PSF SURCHARGE OR TRAFFIC BARRIER (WSDOT STANDARD PLAN D-10.10-01). MIN. TOP WIDTH OF WALL STEM SHALL BE 9" FOR WALLS WITH VERTICAL FACE WITH 2:1 BACKSLOPE (PER WSDOT STANDARD PLAN D-10.20-01).



RECO WALL CAP TYPICAL DETAIL



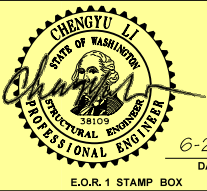
WALL CAP TYPICAL DETAIL



CIP WALL CAP TYPICAL DETAIL

I-405
FILE NO. 9242
SHEET

\\AMECPW03\ICS01\iCS_pdf_work_dir\7615\22040_5\XL5467_DE_WD-04.dgn				RELEASE FOR CONSTRUCTION RECORD				REGION NO.	STATE	FED. AID, PROJ. NO.	SHEET NO.	TOTAL SHEETS
Design Mgr:	BRIAN BELL	RELEASED FOR CONSTRUCTION		06/24/21	0	10	WASH.					
Designed By:	J. FORBES	REVISION		12/22/21	1							
Checked By:	G. BAJORIA											
Detailed By:	J. FORBES											
Current Revision By:	M. FRAKER											
Date:	12/22/2021											
Time:	10:55:14 PM	DESCRIPTION		DATE	NO							



6-24-21
DATE

E.O.R. 2 STAMP BOX



Washington State
Department of Transportation

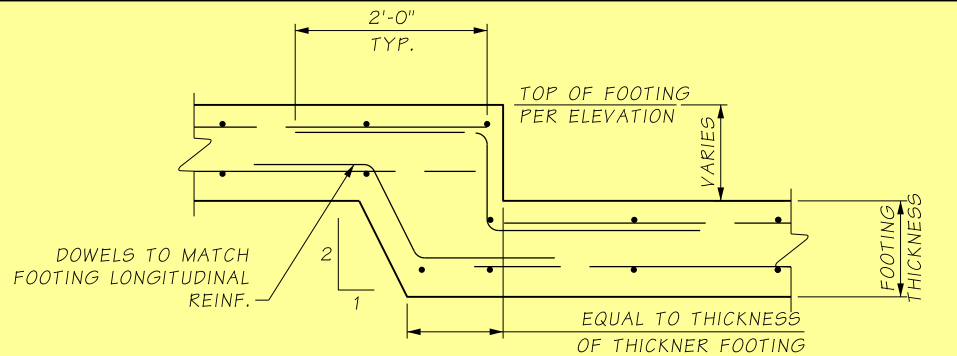
FLATIRON LANE

wood.

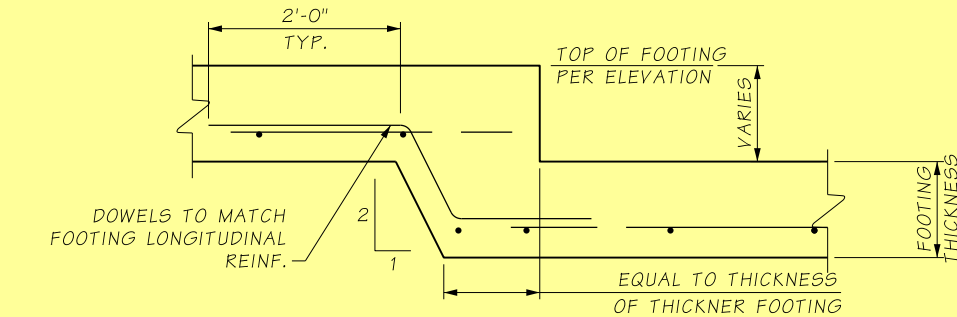
I-405; RENTON TO BELLEVUE WIDENING
AND EXPRESS TOLL LANES PROJECT

RETAINING WALL TYPICAL DETAILS
PRECAST/CIP CONCRETE

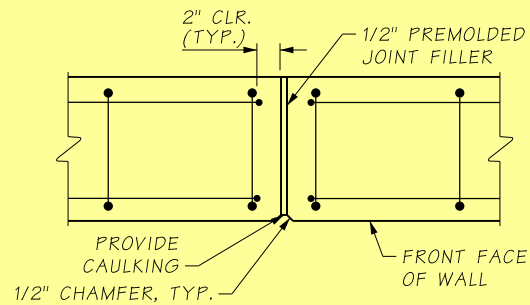
PLAN REF. NO.
WD-04
SHEET
OF
SHEETS



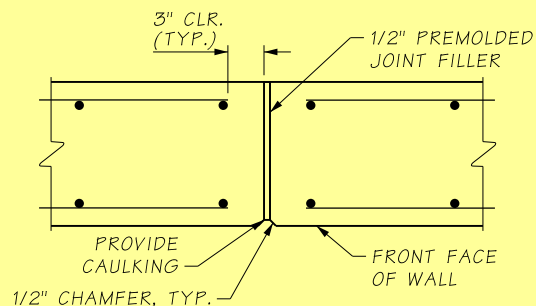
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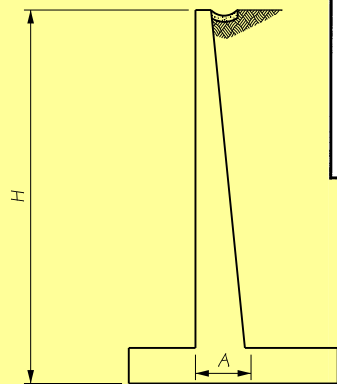
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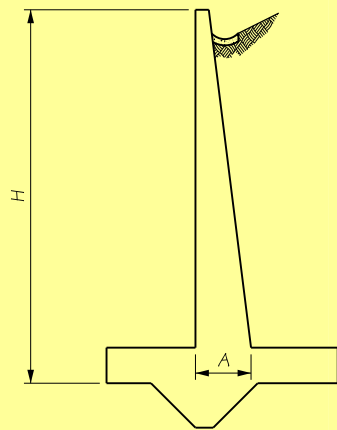
WALL CAP EXPANSION JOINT TYPICAL DETAIL



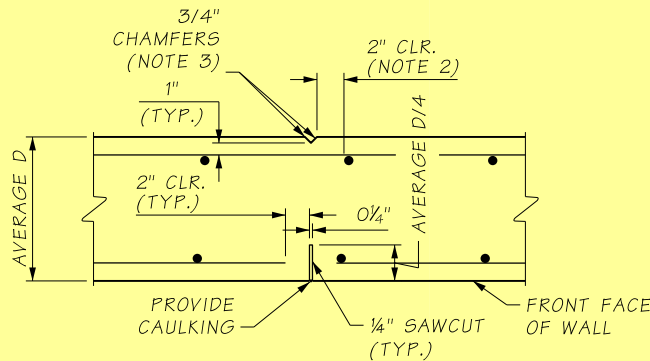
WALL EXPANSION JOINT TYPICAL DETAIL



WSDOT TYPE 1 RETAINING WALL



WSDOT TYPE 3 RETAINING WALL



CONTRACTION JOINT TYPICAL DETAIL
(NOTE 1)

		Date
Originated By:	MJF	12/01/21
Checked By:	JMG	12/01/21
Backchecked By:		
Corrected By:		
Verified By:		

NOTES:

1. THE MINIMUM DEPTH OF CONTRACTION JOINTS SHALL BE BASED ON THE AVERAGE THICKNESS (D) OF THE WALL STEM DIVIDED BY 4. SEE TABLES BELOW FOR WSDOT TYPE 1 AND TYPE 3 REINFORCED CONCRETE WALL INFORMATION AND CONTRACTION JOINT DEPTHS.

WSDOT TYPE 1 REINFORCED CONCRETE RETAINING WALL

(SEE STANDARD PLAN D-10.10-01 FOR WALL HEIGHT > 20 FT)

WALL HEIGHT (H) (FT)	STEM BASE WIDTH (A) (FT)	CONTRACTION JOINT DEPTH (IN)
5	1.33	3.3
6	1.46	3.5
7	1.54	3.6
8	1.63	3.8
9	1.75	3.9
10	1.83	4.1
11	1.96	4.3
12	2.04	4.4
13	2.13	4.5
14	2.25	4.7
15	2.33	4.8
16	2.42	4.9
17	2.50	5.1
18	2.58	5.2
19	2.66	5.3
20	2.79	5.5

WSDOT TYPE 3 REINFORCED CONCRETE RETAINING WALL

(SEE STANDARD PLAN D-10.20-01 FOR WALL HEIGHT > 20 FT)

WALL HEIGHT (H) (FT)	STEM BASE WIDTH (A) (FT)	CONTRACTION JOINT DEPTH (IN)
5	1.25	3.0
6	1.38	3.2
7	1.50	3.4
8	1.63	3.6
9	1.75	3.8
10	1.88	3.9
11	2.00	4.1
12	2.13	4.3
13	2.25	4.5
14	2.33	4.6
15	2.46	4.8
16	2.54	4.9
17	2.63	5.1
18	2.75	5.3
19	2.88	5.4
20	2.96	5.6

2. VERTICAL REINFORCEMENT SHALL BE PLACED A MIN. 2 INCHES FROM WALL BACKFILL SIDE CHAMFERS.
3. PROVIDE VERTICAL CHAMFER FROM TOP OF WALL TO A MIN. 1'-0" BELOW FINISHED GRADE BEHIND THE WALL.

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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD		REGION NO.	STATE	FED. AID, PROJ. NO.	SHEET NO.	TOTAL SHEETS
Designed By:	M. FRAKER			10	WASH.			
Checked By:	M. GARVER				JOB NUMBER			
Detailed By:	R. ABANO				XL5467			
Current Revision By:					CONTRACT NO.			
Date:	11/29/2021				C9242			
Time:	3:40:50 PM	DESCRIPTION	DATE	NO				



DATE

E.O.R. 1 STAMP BOX

DATE

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I-405; RENTON TO BELLEVUE WIDENING
AND EXPRESS TOLL LANES PROJECT

RETAINING WALL TYPICAL DETAILS
WALL FOOTING AND JOINT DETAILS

PLAN REF. NO.

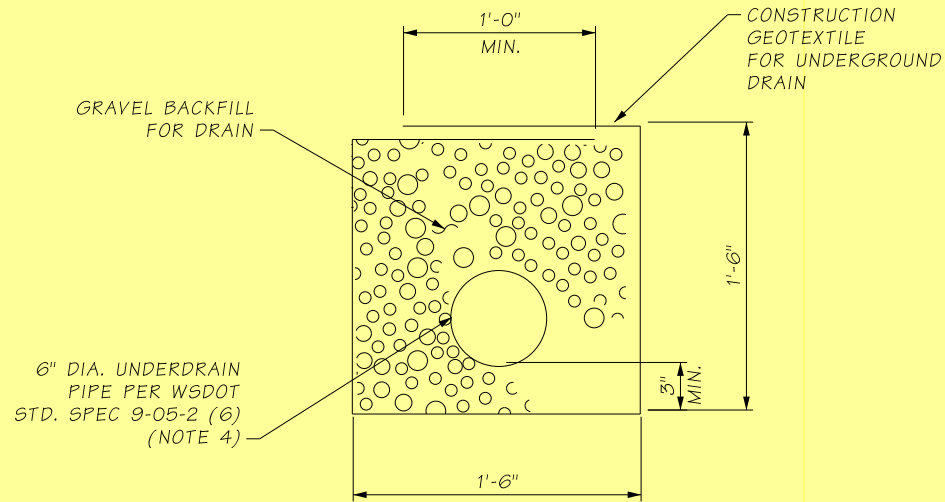
WD-05

SHEET

OF

SHEETS

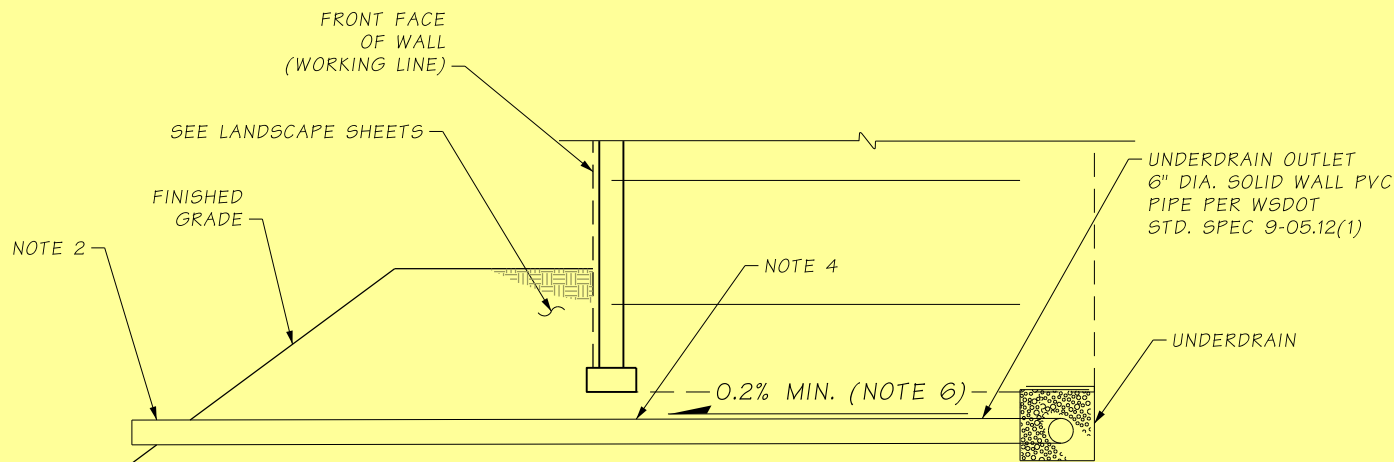
	Date
Originated By: MJF	12/01/21
Checked By: JMG	12/22/21
Backchecked By:	
Corrected By:	
Verified By:	



TYPICAL UNDERDRAIN DETAIL

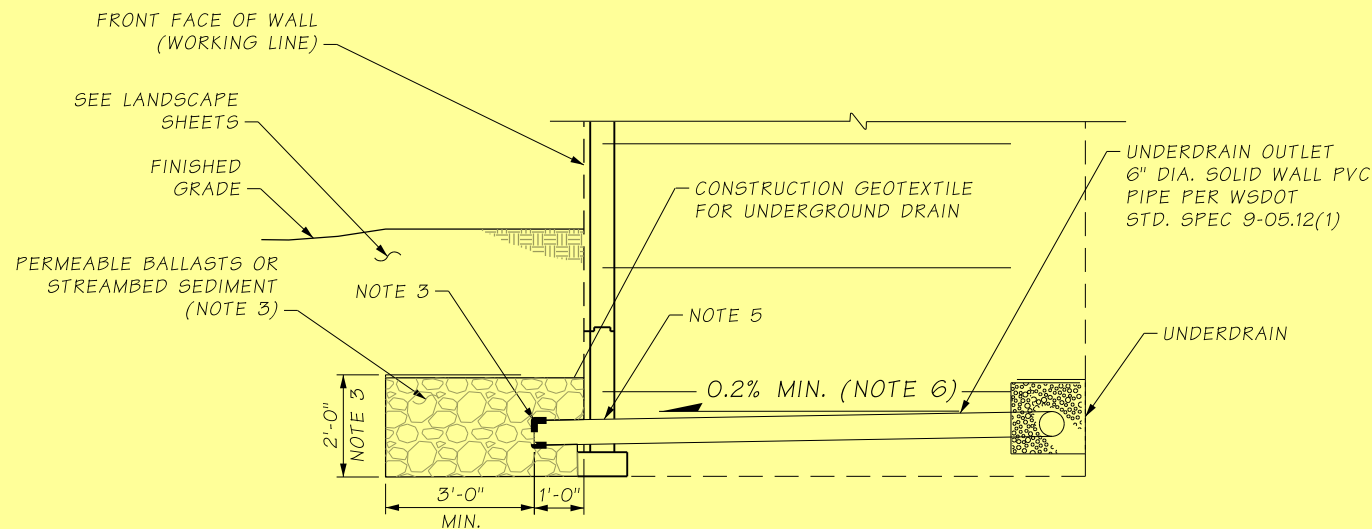
UNDERDRAIN NOTES:

- UNDERDRAIN OUTLET TYPICAL DETAILS ARE SHOWN WITH SEW WALL AND APPLY TO ALL WALL TYPES.
- ALL UNDERDRAIN OUTLETS THAT DAYLIGHT TO SURFACE SHALL BE FITTED WITH A FLAP TYPE ANTI-RODENT ENTRY FITTING. EXTEND PIPE BEYOND FACE OF WALL A MIN. OF 1'-0" AT OUTLET, OR AS REQUIRED TO ATTACH FITTING.
- UNDERDRAINS THAT OUTLET TO STREAM CHANNELS SHALL BE FITTED WITH STAINLESS STEEL MESH ANTI-RODENT ENTRY FITTING. THE PIPE OUTLET SHALL BE BACKFILLED WITH FREE DRAINING PERMEABLE BALLAST OR STREAMBED SEDIMENT MATERIAL. VERTICAL DIMENSION OF DRAIN SHOWN IS THE MIN. AND MAY EXTEND TO A MIN. 12" BELOW FINISHED GRADE. EXTEND FREE DRAINING MATERIAL HORIZONTALLY ALONG THE UNDERDRAIN A DISTANCE OF 3'-0" FROM UNDERDRAIN OUTLET, OR UNTIL CONNECTION WITH CHANNEL STREAMBED MATERIAL, WHICHEVER IS GREATER. EXTEND FREE DRAINING MATERIAL HORIZONTALLY AND PERPENDICULAR TO THE UNDERDRAIN A MINIMUM DISTANCE OF 9" ON EITHER SIDE OF THE UNDERDRAIN.
- PROVIDE MIN. 6" COVER OVER UNDERDRAIN OUTLET UNDER WALL.
- UNDERDRAIN ALIGNMENTS AND ELEVATIONS PROVIDED MAY BE ADJUSTED IF REQUIRED WITH WALL DESIGN IN THE FIELD. UNDERDRAIN OUTLETS SHALL BE PLACED ON MIN. SLOPE OF 0.2% AND MAX. SLOPE OF 2.0%.
- SEE DRAINAGE SHEETS FOR UNDERDRAIN CLEANOUT REQUIREMENTS AND SEE SHEET WD-07 FOR WEEP HOLE DETAILS.



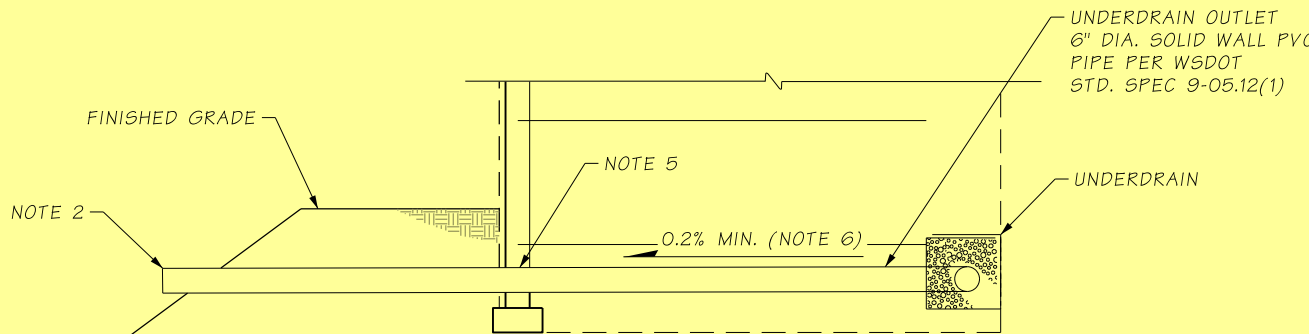
UNDERDRAIN OUTLET TYPICAL DETAIL

(UNDER WALL - DAYLIGHT TO GRADE)



UNDERDRAIN OUTLET TYPICAL DETAIL

(THROUGH WALL - RAIN TO STREAM CHANNEL)

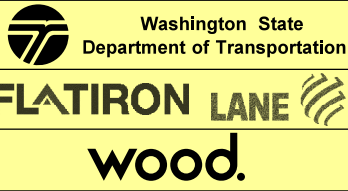
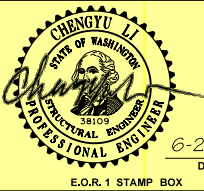


UNDERDRAIN OUTLET TYPICAL DETAIL

(THROUGH WALL - DAYLIGHT TO GRADE)

I-405 FILE NO. SHEET

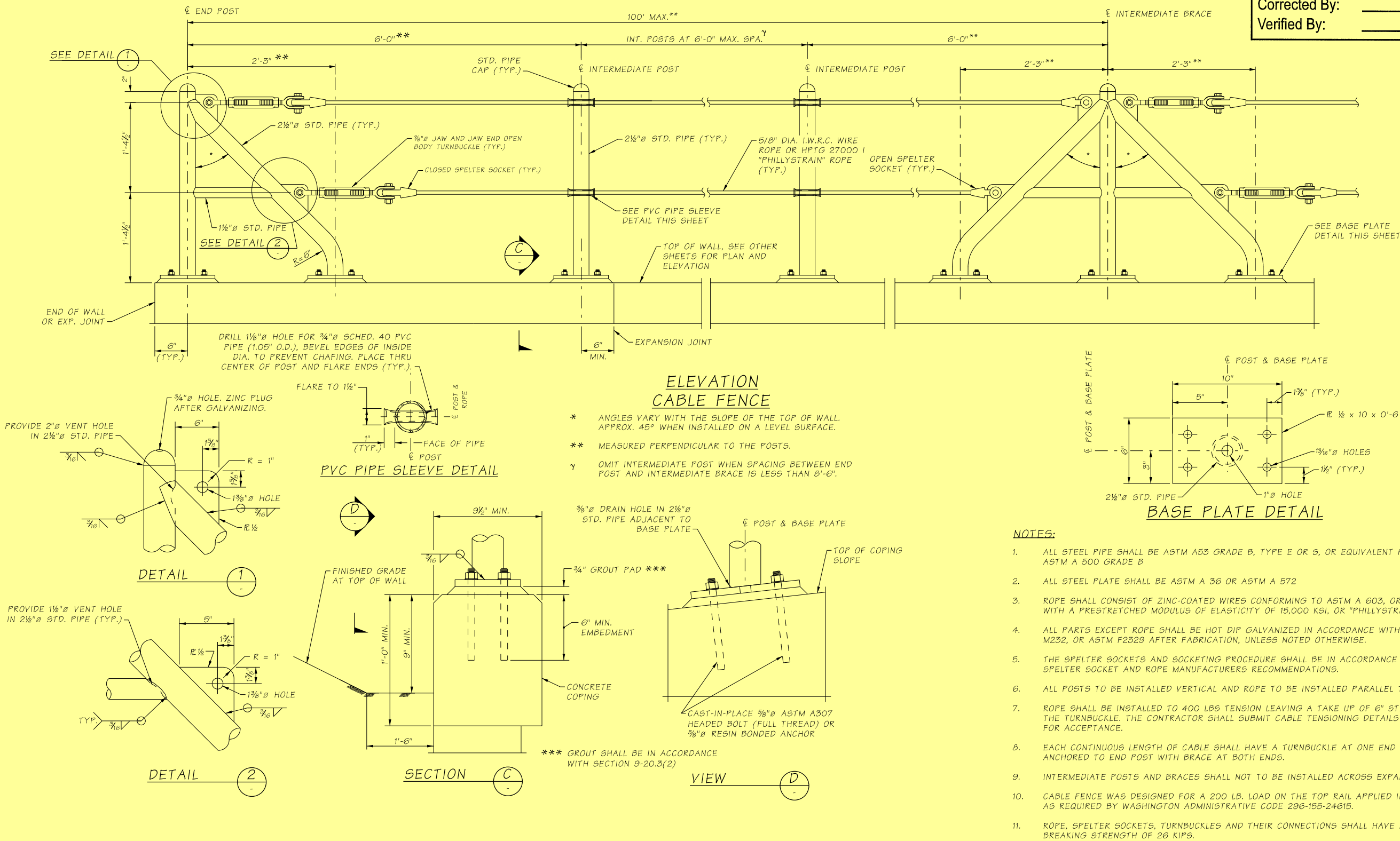
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Design Mgr:	BRIAN BELL	RELEASED FOR CONSTRUCTION		6/24/21	0	10	WASH.			
Designed By:	J. FORBES	REVISION		12/22/21	1					
Checked By:	G. BAJORIA						JOB NUMBER			
Detailed By:	J. FORBES						XL5467			
Current Revision By:	M. FRAKER						CONTRACT NO.			
Date:	12/22/2021						C9242			
Time:	10:55:10 PM	DESCRIPTION		DATE	NO					



I-405; RENTON TO BELLEVUE WIDENING AND EXPRESS TOLL LANES PROJECT

RETAINING WALL TYPICAL DETAILS WALL DRAINS

PLAN REF. NO.
WD-06
SHEET
OF
SHEETS



FILE NO. 1405 SHEET

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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD		10	WASH.			
Designed By:	M. FRAKER							
Checked By:	M. GARVER							
Detailed By:	T. ANTONACCI							
Current Revision By:								
Date:	11/29/2021							
Time:	3:41:53 PM	DESCRIPTION	DATE	NO	CONTRACT NO. C9242			



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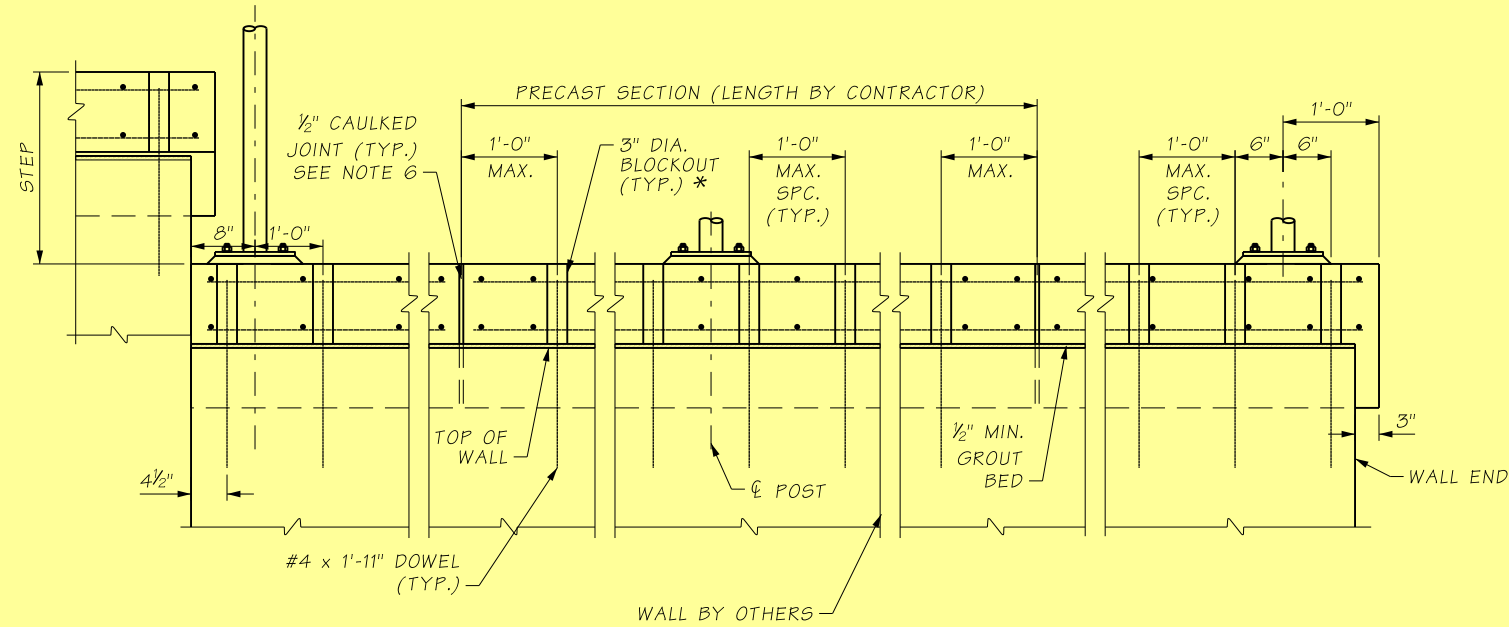
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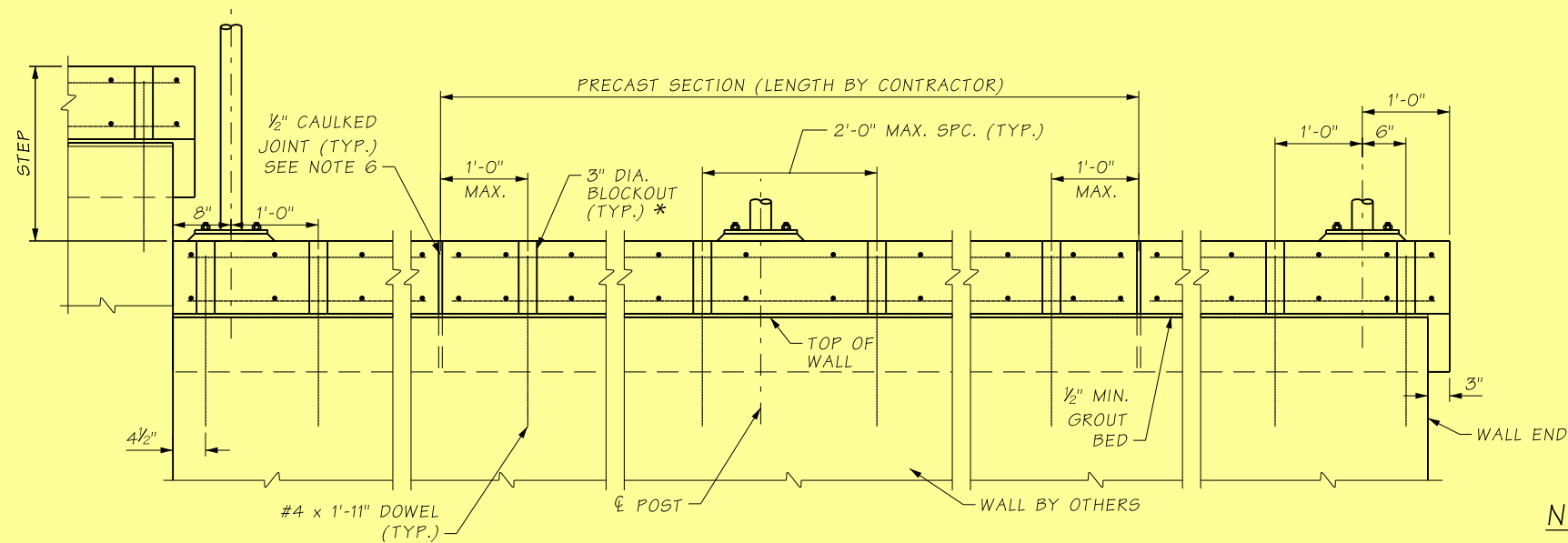
RETAINING WALL TYPICAL DETAILS
FALL PROTECTION CABLE FENCE ALT.

PLAN REF. NO.
WD-08

SHEET
OF
SHEETS



SECTION
PEDESTRIAN FENCE



SECTION
FALL PROTECTION FENCE

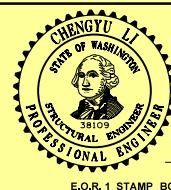
NOTES:

- ALL ANCHOR PLATES SHALL BE GALVANIZED.
- THE TOP OF WALLS SHALL BE LEVEL. WALL CAP STEPS SHALL BE SPACED AT 24'-0" MIN, UNLESS OTHERWISE SHOWN.
- THE TYPICAL WALL CAP STEP SHALL BE 2'-0".
- PRECAST CAP SHOWN. CIP SIMILAR.
- * BLOCKOUTS FOR PRECAST WALL CAPS ONLY
- COPING JOINTS SHALL ALIGN WITH WALL JOINTS. COORDINATE WITH WALL JOINT LAYOUT.

Date		
Originated By:	MJF	12/01/21
Checked By:	JMG	12/22/21
Backchecked By:		
Corrected By:		
Verified By:		

1-405 FILE NO. SHEET

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Design Mgr:	BRIAN BELL	RELEASE FOR CONSTRUCTION RECORD		10	WASH.			
Designed By:	M. FRAKER			JOB NUMBER				
Checked By:	M. GARVER			XL5467				
Detailed By:	R. ABANO			CONTRACT NO.				
Current Revision By:				C9242				
Date:	12/1/2021							
Time:	11:02:31 PM	DESCRIPTION	DATE	NO				



DATE

E.O.R. 1 STAMP BOX

DATE



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I-405; RENTON TO BELLEVUE WIDENING
AND EXPRESS TOLL LANES PROJECT

RETAINING WALL DETAILS
WALL CAP CONNECTION DETAILS

PLAN REF. NO.
WD-09
SHEET
OF
SHEETS